

ENDOTRACHEAL TUBE HOLDER

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention is related to endotracheal tube holders which hold an endotracheal tube in a patient's mouth during mechanical ventilation.

2. Description of the Prior Art

A patient may require an endotracheal tube to assist with the patient's breathing. An elongated tube is passed through a patient's mouth and into the trachea, and an inflatable exterior cuff on the tube is used to seal the trachea about the tube. The external end of the endotracheal tube is connected to a ventilation system in a known manner.

It is important to physically secure the endotracheal tube to the patient to keep the tube from being accidentally removed, crimped or the like. Adhesive tape has been used to secure the tube, but the tape is uncomfortable for a patient and has a tendency to traumatize a patient's skin. A number of endotracheal tube holding devices have been proposed in the art. A complicated structure has been proposed in U.S. Pat. No. 4,744,358, and sold by Respironics Inc. as the "SecureEasy®" endotracheal tube holder. While this device does adequately hold an endotracheal tube in place, its complicated headgear/strap arrangement makes it inconvenient for use by nursing personnel. Other endotracheal tube holders are shown in U.S. Pat. Nos. 3,760,811; 3,774,616; 3,976,080; 3,946,742; 3,993,081; 4,249,529; 4,326,515; 4,344,428; 4,351,331; 4,378,012; 4,437,463; 4,449,527; 4,520,813; 4,537,192; 4,548,200; 4,622,034 and 5,009,227. Other medical tube holding devices are shown in U.S. Pat. Nos. 3,987,798; 4,282,871; 4,571,245; 4,660,555; 4,739,757 and 4,774,946.

The devices shown in the above-identified patents have a common characteristic in that the endotracheal tube is held in one position and cannot be readily moved. When the tube is held in a fixed position beyond a certain period of time, damage to a patient's mouth and/or lip tissue occurs. This is a particular problem with critical care and other patients who require the use of an endotracheal tube over an extended treatment period.

It is, therefore, an object of the present invention to provide an endotracheal tube holder which permits the tube to be moved to different positions with respect to a patient's mouth and/or lips.

U.S. Pat. No. 4,223,671 describes an endotracheal tube holder which permits a limited degree of motion of the tube. However, this device requires considerable force to move the tube holder, offers little degree of movement, and includes a faceplate which completely covers and contacts a patient's lips. Thus, tissue damage to the patient's lips is not avoided. Moreover, access to the patient's mouth is not possible without completely removing the tube holder.

It is, therefore, a further object of the present invention to provide an endotracheal tube holder which permits considerable movement of the tube holder, and avoids mouth and lip tissue damage, yet leaves a patient's mouth and lips substantially uncovered and accessible. It is an object of the present invention to provide an endotracheal tube holder which is easy to install and use, is comfortable to the patient, and permits easy movement of the tube between a large number of differ-

ent positions without disturbing the patient to any significant degree.

SUMMARY OF THE INVENTION

Accordingly, I have developed an endotracheal tube holder which includes a faceplate configured to be positioned against a patient's face and adjacent the patient's mouth. The faceplate includes an elongated guide track in a guide track portion therein, with the guide track portion configured to be positioned beneath the patient's mouth. The endotracheal tube holder also includes an endotracheal tube platform attached to the guide track portion of the faceplate and configured to carry an endotracheal tube thereon. A slide means provided for moving the endotracheal tube platform along the guide track. In addition, a locking means is included for locking the endotracheal tube platform to one of a plurality of locations along the guide track.

The faceplate can include a first side portion and a second side portion spaced therefrom. The guide track portion extends between the side portions along their lower edges. The side portions are substantially taller than the narrower guide track portion. The faceplate forms a U-shaped structure which is configured such that the side portions contact a patient's cheeks on opposite sides of the patient's mouth and the guide track portion contacts the patient's chin.

A resilient bite block can be attached to and aligned with the tube platform and configured to carry an endotracheal tube thereon. The bite block can include a pair of opposed resilient arms extending outwardly from a rear surface of the tube platform. A securement means, such as a pair of opposed locking tabs, can be provided on the tube platform for securing an endotracheal tube thereto. A mounting harness is attached to the faceplate and wraps around the patient's neck to securely attach the endotracheal tube holder to the patient's face. The mounting harness can include a neck brace and a pair of straps attached at opposite sides thereof, with the first and second side portions of the faceplate each including a strap receiving slot to which the mounting harness straps are attached.

The slide means can include a guide member having a base positioned within the guide track portion and slideable along the guide track, and having a head attached to the guide member and extending through the guide slot. The tube platform is attached to a free end of the guide member extending beyond an outer surface of the guide track portion. The tube platform can include a pivot shaft attached to a lower surface thereof and extending perpendicularly therefrom. The pivot shaft passes through a hole in the free end of the head of the guide member. The locking means can include a locking lever pivotally mounted on the pivot shaft and on the head of the guide member. The locking lever is moveable from a first position which permits free movement of the guide member along the guide track to a second position which locks the guide member to the guide track portion. The locking lever can include a handle and at least one cam member, preferably two spaced cam members, attached thereto. If a pair of cam members is used, they are positioned on opposite surfaces of the head of the guide member. Each cam member includes a flat surface opposite the handle and oriented toward the guide track portion. Each cam member includes aligned, eccentric holes which are configured to receive the pivot shaft of the tube platform. In the first locking lever position, the flat surfaces of the cam